

Consideration of Endocrine-Mediated Mode of Action and Life-Stage Specific Susceptibility in the Risk Assessments for Two Pesticides

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Background

ORD has historically contributed to the risk assessments of specific individual pesticides or classes of pesticides through:

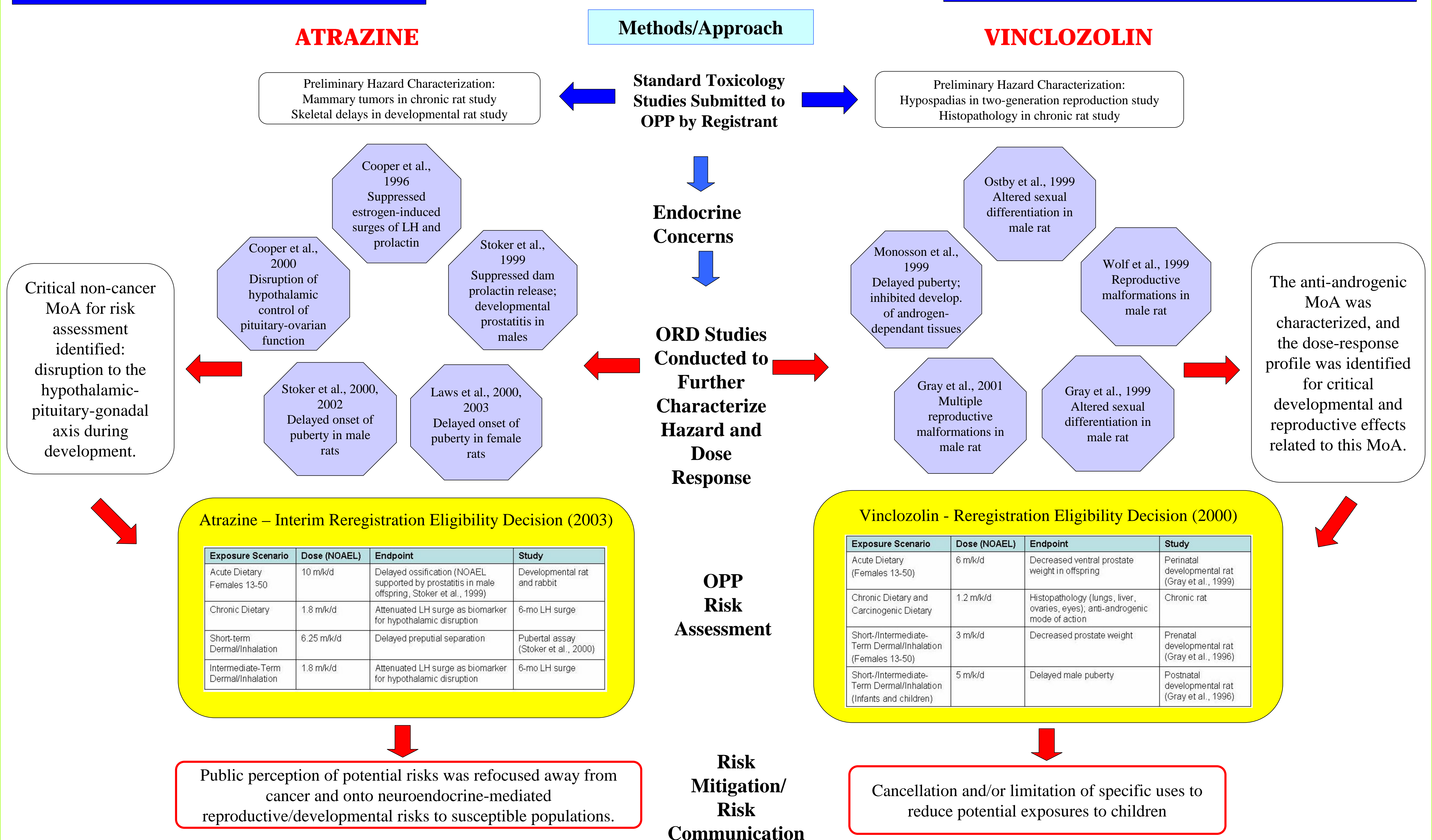
- Test methods development
- Generation of data
- Consultation with the Office of Pesticide Programs (OPP).

Atrazine and Vinclozolin

- Atrazine and vinclozolin are widely used pesticides
- OPP was conducting re-registration evaluations under FIFRA (the Federal Insecticide, Fungicide, and Rodenticide Act)
- Required an assessment of potential risks to children, as mandated by FQPA (the Food Quality Protection Act).

ORD Research and Consultation

- ORD research focused on:
 - ✍ Characterizing the mode of action (MoA)
 - ✍ Determining the effects of exposure across varying life stages (e.g., prenatal, postnatal, peri-pubertal, and adult).
- Extensive collaboration and consultation between ORD and OPP occurred while developing the risk assessments.



ORD's Contribution to OPP's Risk Assessment

- Research conducted or supported by ORD to fill specific, critical data gaps, contributed to the characterization of MoA and life-stage specific susceptibility issues.
- For both atrazine and vinclozolin, ORD studies provided:
 - ✍ Methodologies to assess hazard
 - ✍ Confirmation of susceptibility during specific life stages
 - ✍ Support for decisions regarding the adverse consequences of the observed effects
 - ✍ A basis for extrapolation from animal data to potential human response.
 - ✍ Information critical in identifying the point of departure for risk assessments conducted by OPP.

Outcome and Impact

OPP's risk management decisions addressed the protection of susceptible populations, in relation to the critical endocrine-mediated mode of action.

- ✍ **Atrazine:** Risk communication efforts were critical in refocusing public perception of potential risks, away from long-term cancer concerns (the focus of past risk assessments) and towards non-cancer endocrine-mediated risks to susceptible populations.
- ✍ **Vinclozolin:** Data generated by ORD were utilized in establishing endpoints and doses for short- and intermediate-term non-dietary risk assessments and for characterizing remaining data gaps and uncertainties. Characterization of risks associated with vinclozolin exposures during development resulted in risk mitigation actions (cancellation and/or limitation of specific uses to reduce potential exposures to children).

Atrazine References:

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Vinclozolin References:

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Gray Jr., L.E. et al. (1999) *Tox. Indust. Health* 15(1-2):48-64.
Monosson, E. et al. (1999) *Tox. Indust. Health* 15:65-79.
Ostby, J. et al. (1999) *Tox. Indust. Health* 15:80-93.
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